

Amendments to the Specification

Please add the following paragraph at page 5, line 26:

Fig. 12 is a schematic diagram of an x-ray scanning system having gantry positioning apparatus mounted to a cantilevered O-shaped gantry and a mobile cart.

Please replace the paragraph at page 5, lines 22 through 23 with the following amended paragraph:

Fig. 10 shows the projection of multiple angled detector array positions onto a single virtual flat equilinear detector array; and

Please replace the paragraph at page 5, lines 24 through 25 with the following amended paragraph:

Fig. 11 shows the projection of multiple angled detector array positions onto a single virtual curved equiangular detector array; and

Please replace the paragraph at page 10, lines 8 through 23 with the following amended paragraph:

In the examples shown here, the real detector array comprises three flat panel detectors arranged end-to-end, and angled to approximate an arc having a radius centered on the focal spot of the radiation source. It will be understood, however, that the principles of the invention can be used with actual detectors having any number of detector elements, including both 1D line detectors and 2D panel detectors, where the geometry of the actual detector is neither equilinear or equiangular. In addition, the principles of the present invention can be advantageously employed in a system where one or more detectors are movable to various discrete positions along a line or arc relative to the x-ray source, such as described in co-pending U.S. Patent Application No. 10/392,365, filed on March 18, 2003, the entire teachings of which are incorporated herein by reference. The principles of the present can also be used in a system in which the source and detector are tiltable about the focal spot of the source to obtain a larger field-of-view in the axial direction, such as described in co-pending U.S. application entitled "Cantilevered Gantry Positioning Apparatus for X-Ray Imaging System" (~~Attorney's Docket No.~~

~~3349.1004-001~~ U.S. Patent Application No. 10/645,322), filed on even date herewith, the entire teachings of which are incorporated herein by reference. Fig. 12 is a schematic diagram showing an x-ray scanning system 10 described in U.S. Patent Application No. 10/645,322. The x-ray scanning system 10 includes a gantry 11 secured to a support structure, which could be a mobile or stationary cart, a patient table, a wall, a floor, or a ceiling. The x-ray scanning system 10 can be used to obtain two-dimensional planar or three-dimensional computerized tomographic (CT) x-ray images of an object, such as a patient. In the embodiment shown in Fig. 12, the gantry 11 is a generally circular, or "O-shaped," housing having a central opening into which an object being imaged is placed. It will be understood that various other gantry configurations, such as a "C-shaped" gantry, can also be employed. In one embodiment, the gantry 11 contains an x-ray source (such as a rotating anode pulsed x-ray source) that projects a beam of x-ray radiation into the central opening of the gantry, through the object being imaged, and onto a detector array (such as a flat panel digital detector array) located on the opposite side of the gantry. The x-rays received at the detector can then be used to produce a two-dimensional or three-dimensional image of the object using well-known techniques. The x-ray source is able to rotate around the interior of the gantry 11 in a continuous or step-wise manner so that the x-ray beam can be projected through the object, and through a common isocenter, at various angles over a partial or full 360 degree rotation. The detector array is also rotated around the interior of the gantry, in coordination with the rotation of the x-ray source, so that for each projection angle of the x-ray source, the detector array is positioned opposite the x-ray source on the gantry. The apparatus is thus able to obtain high-quality x-ray images of the targeted object in any projection plane over a partial or full 360 degree rotation.